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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
SMITH, JOSHUA Y	

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/728,981	HANAKI ET AL.	
	Examiner	Art Unit	
	JOSHUA SMITH	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/22/2008 has been entered.

- **Claims 1, 3 and 5-13 are pending.**
- **Claims 2 and 4 were previously cancelled.**
- **Claims 1, 3 and 5-13 stand rejected.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 7-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe et al. ("MEDIA SCALING APPLIED TO MULTICAST COMMUNICATIONS", 15 September 1998, Computer Communications, vol 21, no. 14, XP-004146583, pages 1226, 1229-1235, 1239) in view of Lundby (Patent No.: US 6,856,604 B2) and Sato et al. (Pub. No.: US 2002/0003798 A1), hereafter referred to as Onoe, Lundby, and Sato, respectively.

As for Claims 1 and 9, Onoe teaches in page 1229, section 2.1. and section 2.1.1., and in page 1229, Table 2, of application layer levels that encode data according to QoS levels, where QoS levels are introduced into group address schemes for multicast groups, and the QoS levels are specified according to potential factors, such as network and CPU capacities (substantively the same as "a category manager" and "a capability value showing a reception capability necessary for receiving multicast data" in the instant invention).

Onoe also teaches in pages 1234-1235, section 2.4., the data link layer levels translate the QoS level of each packet into one VC, where each VC then acts as a dynamic multicast connection depending on the QoS levels of receivers (substantively the same as "a transmitter configured to transmit the multicast data" in the instant invention). Onoe fails to teach a category manager configured to store categories of reception capability, joining in a multicast group, a category manager configured to store a reception capability value showing a reception capability necessary for receiving

multicast data in each of mobile stations, and a reception capability collector configured to collect reception capability values of each of mobile stations, a category corresponding to reception capability, and a transmitter configured to transmit multicast data using a transmission method corresponding to a first category and a transmission method corresponding to a second category, when both a reception capability value corresponding to a first category and a reception capability value corresponding to a second category are collected by a reception capability collector. Lundby teaches a category manager configured to store categories of reception capability, joining in a multicast group, and Sato teaches a category manager configured to store a reception capability value showing a reception capability necessary for receiving multicast data in each of mobile stations, and a reception capability collector configured to collect reception capability values of each of mobile stations, a category corresponding to reception capability, and a transmitter configured to transmit multicast data using a transmission method corresponding to a first category and a transmission method corresponding to a second category, when both a reception capability value corresponding to a first category and a reception capability value corresponding to a second category are collected by a reception capability collector.

In the same field of endeavor, Lundby teaches in column 8, lines 29-44, a method or algorithm may be implemented in association with a storage medium coupled to a processor such the processor can read information from and write information to a storage medium (substantively the same as "a category manager configured to store categories of reception capability" in the instant invention).

Lundby teaches in column 2, lines 9-21, an apparatus for multi-cast transmission that minimize channel resources, and, in column 4, line 66 to column 5, line 9, a remote station that is entering a communications system is assigned a medium access control identifier to be able to receive multi-cast services (substantively the same as "joining in a multicast group" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Lundby with the document of Onoe since Lundby provides an alternative multicasting optimization method that involves wireless technologies, allowing the technique of Onoe to expand into wireless markets and provide efficient wireless multicasting to those users.

In the same field of endeavor, Sato teaches in paragraph [0060], and in FIG. 1 and FIG. 3), in a system rendering multicast services, each wireless terminal 10 (FIG. 1) residing in a service area Es (FIG. 1) of a wireless base station 20 (FIG. 1) uses a control unit 13 (FIG. 3) to measure reception quality such as a reception level with regard to a free downlink channel that is used by a transceiver (FIG. 3) for signal reception, and each wireless terminal 10 (FIG. 1) notifies a wireless base station 20 (FIG. 1) of the results of measurement (a category manager configured to store a reception capability value showing a reception capability necessary for recieving multicast data in each of mobile stations, and a reception capability collector configured to collect reception capability values of each of mobile stations).

Sato teaches in paragraphs [0065], [0073], and [0074], and in FIG. 4 and FIG. 8, wireless terminals A through E in FIG. 4 reside in poor communication environments

because of weak reception signals or the like, and requires reception quality is not satisfied unless a low rate transmission (fb) is employed, and wireless terminals H through L (FIG. 4), on the other hand, reside in advantageous communication environments, so that a high speed transmission (fa) satisfies a required reception quality, for transmission of the same multicast information, and wireless terminals H through L (FIG. 8) positioned relatively closer to a wireless base station BS (FIG. 8) have relatively better reception quality, so that the multicast information can be transmitted at a relatively high rate to wireless terminals H through L by using three spreading codes C1, C2, and C3, and since reception quality at wireless terminals A through E (FIG. 8) farther away from a wireless base station is poorer, only two spreading codes may be used for wireless terminals A through E (FIG. 8), and accordingly, use of two spreading codes C1 and C2 is chosen as the transmission conditions of multicast information for wireless terminals A through E (FIG. 8) based on reception quality thereof (a category corresponding to reception capability, and a transmitter configured to transmit multicast data using a transmission method corresponding to a first category and a transmission method corresponding to a second category, when both a reception capability value corresponding to a first category and a reception capability value corresponding to a second category are collected by a reception capability collector). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sato with the document of Onoe since Sato provides a detailed method of providing quality service to wireless mobile stations involving time slotting and code division multiplexing by separating

receivers into two groups, which can be incorporated into the system of Onoe since this will expand the teachings of Onoe for implementation into wireless mobile networks and provide a technique of transmitting multicast data in networks that implement CDMA and to build on the QoS service control for use in wireless mobile CDMA networks.

As for Claim 7, as discussed in the rejection of Claim 1, Onoe in view of Lundby and Sato teaches reception capability values of mobile stations. Onoe further teaches in page 1229, section 2.1.1., CPU capacities, and, in page 1235, section2.4., buffer space consumption (substantively the same as "at least one of ... reception buffer size, a processing capability" in the instant invention).

As for Claim 8, as discussed in the rejection of Claim 1, Onoe in view of Lundby and Sato teaches a communication system and transmission methods corresponding to a first and second category. Onoe fails to teach transmission methods corresponding to a set of collected reception capability values, a structure defined by at least one of a coding rate, a number of repeating bits, a number of thinned bits, an interleaving length, a number of multiplexed codes, a number of information blocks, a modulation method, a coding method and transmission power. Lundby further teaches these limitations.

Lundby further teaches in column 6, lines 22-26, 31-51, and 56-64, and in FIG. 2, Sheet 2 of 2, a scheduling element in a base station determines channel quality feedback indicators from M subscribers to a multi-cast service, and then a scheduling element selects an optimal time for transmitting a multicast, and a base station encodes

multicast data in a manner that would allow reception at an acceptable quality level by a subscriber, scrambles the encoded multi-cast data as necessary with a scrambling code that is known by all subscribers, and transmits it at a selected time using a specific modulation scheme and power level (substantively the same as "transmission methods are respectively defined by" in the instant invention).

Lundby also teaches in lines 53-54, column 4, of parameters of a data transmission including modulation, coding, and power (substantively the same as "at least one of ... a coding rate, ... a modulation method, ... and transmission power" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Lundby with the document of Onoe since Lundby provides an alternative multicasting optimization method that involves wireless technologies, allowing the technique of Onoe to expand into wireless markets and provide efficient wireless multicasting to those users.

As for Claim 13, Onoe teaches in page 1229, section 2.1. and section 2.1.1., and in page 1229, Table 2, of application layer levels that encode data hierarchically according to QoS levels, which, as discussed above, are specified according to potential factors, such as network and CPU capacities, and where high-performance receivers belonging to QoS level 2 receive both Left + Right and Left – Right audio data, but low-performance receivers receive only Left + Right data (substantively the same as "the category is associated with a type of multicast data" in the instant invention).

Claims 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe in view of Lundby, Sato, and further in view of Hundscheidt et al. (US 2002/0085506 A1), hereafter referred to as Hundscheidt.

As for Claim 3, Onoe teaches in page 1229, section 2.1. and section 2.1.1., and in page 1229, Table 2, of application layer levels that encode data according to QoS levels, where QoS levels are introduced into group address schemes for multicast groups, and the QoS levels are specified according to potential factors, such as network and CPU capacities (substantively the same as "including information regarding the category, according to the collected reception capability value" in the instant invention). Onoe does not teach of a notice information transmitter to transmit notice information. Hundscheidt teaches these limitations.

In the same field of endeavor, Hundscheidt teaches in paragraphs [0091] to [0093], of a generated table that includes information from which the number of recipients per sub-branch, along with their associated metric(s), can be determined, and where this information can be multicast to a Subgroup of recipients (substantively the same as "a notice information transmitter configured to transmit, to mobile stations, notice information" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

As for Claim 5, as discussed in the rejection of Claim 1, Onoe in view of Lundby teaches mobile stations and collected reception capability values of mobile stations. Onoe fails to teach a notice information judger to judge whether or not the notice information should be transmitted in accordance to presence information and to instruct the notice information transmitter to transmit the notice information in accordance with the judgment. Hundscheidt teaches these limitations.

In the same field of endeavor, Hundscheidt teaches in paragraphs [0093], [0094], and [0095], and in FIG. 2, Sheet 2 of 4, of a multicast router that performs a recursive process in which it is determined that a message is multicast to only a certain number of hosts, and the multicast router will send the message to hosts that are close enough to the sender, but the multicast router will not send the message to hosts too far away from the sender (substantively the same as "a notice information judger configured to judge whether or not the notice information should be transmitted" and "in accordance with ... presence information" and "to instruct the notice information transmitter to transmit the notice information in accordance with the judgment" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

As for Claim 6, as discussed in the rejection of Claim 1, Onoe teaches a communication system. Onoe fails to teach the transmitter transmits the multicast data in accordance with a transmission request from the mobile stations. Hundscheidt further teaches these limitations.

In the same field of endeavor, Hundscheidt further teaches in paragraphs [0089], [0090], [0091], and [0092], that a host can trigger the counting and eventual multicasting of information though a request (substantively the same as "the transmitter transmits the multicast data in accordance with a transmission request from the mobile stations" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe in view of Lundby, Hundscheidt, and Sainio et al. (Patent No.: US 6,549,541 B1), hereafter referred to as Sainio.

As for Claim 10, Onoe teaches in page 1229, section 2.1. and section 2.1.1., and in page 1229, Table 2, of application layer levels that encode data according to QoS levels, where QoS levels are introduced into group address schemes for multicast groups, such as network and CPU capacities, and receivers belong to one of the groups

(substantively the same as "a category to which a reception capability value of the ... station belongs" and "category" in the instant invention).

Onoe also teaches in page 1229, section 2.1. and section 2.1.1., and in page 1229, Table 2, of transmitted data that is encoded hierarchically according to QoS levels, is received by multicast groups, and each receiver receives packets based on the hierarchically encoded data (substantively the same as "a receiver configured to receive the multicast data transmitted using ... methods" in the instant invention).

Onoe also teaches in page 1234, section 2.3., QoS levels in fliters for each QoS type (substantively the same as "a selector configured to select multicast data corresponding to the category ... from among the received multicast data" in the instant invention).

Onoe also teaches in page 1229, section 2.1.1., CPU capacities, and, in page 1235, section 2.4., buffer space consumption (substantively the same as "at least one of ... reception buffer size, a processing capability" in the instant invention). Onoe does not teach a category memory configured to store, a set of transmission methods, and a category to which a reception capability value belongs is defined by a reception buffer size. Hundscheidt teaches a category memory configured to store, Lundby teaches a set of transmission methods, and Sainio teaches a category to which a reception capability value belongs is defined by a reception buffer size.

In the same field of endeavor, Lundby teaches in column 6, lines 22-26, 31-51, and 56-64, and in FIG. 2, Sheet 2 of 2, a scheduling element in a base station determines channel quality feedback indicators from M subscribers to a multi-cast

service, and then a scheduling element selects an optimal time for transmitting a multicast, and a base station encodes multicast data in a manner that would allow reception at an acceptable quality level by a subscriber, scrambles the encoded multi-cast data as necessary with a scrambling code that is known by all subscribers, and transmits it at a selected time using a specific modulation scheme and power level (substantively the same as "a set of transmission methods" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Lundby with the document of Onoe since Lundby provides an alternative multicasting optimization method that involves wireless technologies, allowing the technique of Onoe to expand into wireless markets and provide efficient wireless multicasting to those users.

In the same field of endeavor, Hundscheidt teaches in paragraph [0003], information stored at one location to be distributed to one or more users situated at geographically different locations (substantively the same as "memory configured to store" and "stored in the ... memory" in the instant invention).

Hundscheidt also teaches in paragraph [0012], and in FIG. 1, Sheet 1 of 4, an IP multicast scenario with a wireless first client (see item 101) and a wireless second client (see item 102), that receive packets suitable for a codec optimized for wireless environments (substantively the same as "mobile stations" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and

wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

In the same field of endeavor, Sainio teaches in column 3, lines 18-21, forming user groups k=1,2,…,M, where members of a group have an equal minimum buffer capacity each, where if M=1, then all users have equal minimum buffers (a category to which a reception capability value belongs is defined by a reception buffer size). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sainio with the document of Onoe since Sainio provides a system in which users are grouped based on their minimum buffer capacity, which can be incorporated into the teachings of Onoe so that buffer capacities of users can be taken into account for providing the most appropriate QoS to those users in such a way so that users with relatively small buffer capacities are not overwhelmed and users with relatively large buffer capacities are allowed to take full advantage of their buffering capabilities.

As for Claim 11, as discussed in the rejection of Claim 10, Onoe in view of Hundscheidt teaches a category memory and a radio station. Onoe fails to teach being updated in accordance with information transmitted. Hundscheidt further teaches these limitations. Hundscheidt teaches in paragraph [0109], of clients receiving updated information from the service environment in real time and the need of servers being synchronized (substantively the same as "updated in accordance with information transmitted" in the instant invention). It would have been obvious to one of ordinary skill

in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

As for Claim 12, as discussed in the rejection of Claim 10, Onoe in view of Hundscheidt teaches a station transmitting to a radio station. Onoe fails to teach transmitting a transmission request for multicast data. Hundscheidt further teaches these limitations. Hundscheidt further teaches in paragraphs [0089], [0090], [0091], and [0092], that a host can trigger the counting and eventual multicasting of information though a request (substantively the same as "a transmission requester configured to transmit a transmission request for multicast data" in the instant invention). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Hundscheidt with the document of Onoe since Hundscheidt provides an alternative multicasting optimization method that involves both wireless and wireline technologies, allowing the technique of Onoe to be utilized for both types of technologies and expanding the capabilities of Onoe.

Response to Arguments

Applicant's arguments with respect to claims 1, 3 and 5-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Malkin et al. (Patent Number: 5,940,391)** teaches in column 10, lines 15-19, MRNs can be grouped into three T-groups according to receiving capabilities, and the three T-groups are of 1M b/sec, 56K b/sec and 28K b/sec.

Putzolu (Patent No.: US 6,359,902 B1) teaches in column 6, lines 38-43, multicast "sub-groups" for a private network that allow equipment with varying reception capabilities connected to a private network to access the multicast group being transmitted.

Trossen et al. (Patent No.: US 6,996,104 B2) teaches in column 24, lines 4-8, each mobile terminal joins one of a plurality of multicast groups based on received signal quality information.

Mansour et al. (Pub.No.: US 2003/0067931) teaches in paragraphs [0079] and [0096], and in FIG. 2, grouping queues according to queue length, where step 23 (FIG. 2) shows grouping queues into a group of k largest queues and a group of remaining queues.

Bansal et al. (Patent No.: US 6,680,909 B1) teaches in claim 1, classifying Master-Slave pairs into categories based on queue size information.

Sastry et al (pub. No.: US 2003/0058871 A1) teaches in paragraph [0076], maximum queue lengths for Classes 1, 2, and 3 were 10 packets, 100 packets, and 100 packets, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA SMITH whose telephone number is (571)270-1826. The examiner can normally be reached on Monday-Thursday 9:30am-7pm, Alternating Fridays 9:30am-6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua Smith
Patent Examiner
17 June 2008

/Hassan Kizou/
Supervisory Patent Examiner, Art Unit 2619